

REMARKS

Claims 1-3, 5-21, 23-28, 30-42, 44-74, 76-85 and 87-123 were pending in the present application. With this response, claims 1, 26, 47, 61, 71, 90, 104 and 117 have been amended. Support for the amendments can be found throughout the application as originally filed. Specifically, support can be found, *inter alia*, at paragraphs 0049 and 0062 of the specification. New claims 124-147 are presented for examination. Support for the new claims also can be found, *inter alia*, at paragraphs 0049 and 0062. No new matter has been added. Applicant notes that the addition of new claims 124-147 represents the addition several corresponding sets of dependent claims, each set dependent on a separate independent claim. The new dependent claims are directed to more specific features of the claimed sealant assemblies/spacers. Upon entry of the present Amendment, Applicant believes the claims are in condition for allowance and respectfully requests reconsideration and withdrawal of all outstanding rejections.

Office Action dated February 4, 2010

Claims 1-3, 5-21, 23-28, 30-42, 44-74, 76-85 and 87-123 have been rejected under 35 USC § 103(a) as allegedly obvious over Heaney (U.S. Patent No. 4,477,129) in view of Misonou et al. (U.S. Patent No. 6,830,791). Claims 18 and 39 also have been rejected under 35 USC § 103(a) as allegedly obvious over Heaney and Misonou, in further view of Richardson (U.S. Patent No. 5,113,628).

Rejection of Claims 1-3, 5-21, 23-28, 30-42, 44-74, 76-85 and 87-123 Under 35 U.S.C. §

103(a)

Claims 1-3, 5-21, 23-28, 30-42, 44-74, 76-85 and 87-123 have been rejected under 35 USC § 103(a) as allegedly obvious over Heaney in view of Misonou. Applicant notes that claims 1, 26, 47, 61, 71, 90, 104 and 117 are independent claims from which all other pending claims depend, either directly or indirectly.

The Office Action's full rationale for the rejection is set forth at pages 1-10. Regarding the independent claims, the Office Action asserted that Heaney discloses a door having inner, outer and middle sheets of glass, first and second sealants, a frame, and a coating. The Office Action relied on Misonou for disclosure of a glass panel system with an emissivity coating.

In response, without conceding the correctness of the position taken in the Office Action, but to expedite allowance, Applicant has amended the claims to recite that at least one of the first and second sealant assemblies is a "non-metal sealant assembly." Inasmuch as the rejections can be applied to the claims as amended, Applicant respectfully traverses. The combination of Heaney and Misonou does not render obvious the present claims for at least the reasons set forth below.

In addition to their failure to teach the U-values and emissivities recited in Applicant's claims (as Applicant has previously pointed out), Heaney and Misonou also do not teach or suggest the use of a *non-metal sealant assembly*. Accordingly, no combination of Heaney and Misonou would, in any way, lead one of skill in the art to arrive at the presently claimed subject matter. Rather, only if equipped with the disclosure of the present application would one of only ordinary skill in the art be able to arrive at the claimed subject matter. (See previously submitted

Declaration of Christopher R. Cording, at ¶ 9). Significantly, as the present application discloses at least at pages 8 and 9, it was the discovery and subsequent testing and computer modeling of the present invention that revealed that U values of approximately 0.2 BTU/hr-ft²-F or less (and emissivity values of 0.05 or less) are required for the refrigeration door *with a low-E coating and a non-metal sealant assembly* to prevent condensation, without the need for the application of energy, on the outside of the glass. *Id.* This is not disclosed or suggested in any way by Heaney or Misonou and was not within the knowledge of those skilled in the art at the time of the invention. As such, the prior art simply does not disclose the present invention. In that regard, Heaney in particular refers only broadly to “spacers” (column 6), and then proceeds to make clear that the glass panes are held together by a U-shaped frame member and a separate sealing gasket. This is not the configuration of the present claims, wherein the sealant assembly also acts as a spacer.

Moreover, claim 1 recites “an insulating glass unit having a U value substantially equal to or less than 0.2 BTU/hr-sq ft-F substantially preventing the formation of condensation . . . without the application of electricity.” The Office Action states that when “the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.” Office Action at Page 4. However, neither Heaney nor Misonou discloses the use of *a low-E coating and a non-metal sealant assembly* in combination to achieve U values enabling a refrigeration door to prevent condensation without the need for application of energy. *See Declaration of Christopher R. Cording* at ¶ 5. The prior art certainly does not teach or suggest specific values or ranges of insulating or heat conductivity properties that may prevent condensation on a refrigerator door. As noted above, it was the discovery, and the subsequent testing and computer modeling of the present invention that showed that U values

of approximately 0.2 BTU/hr-ft²-F or less are required for a refrigeration door to prevent condensation without the need for the application of energy. *See Declaration of Christopher R. Cording* at ¶ 9. Furthermore, this feature of claim 1 does not represent “mere optimization” of subject matter disclosed by the prior art at least in part because such variables were not previously recognized in the cited art as necessary to achieve the desired result (as would be required to sustain a rejection on such grounds). Moreover, as the present inventor has shown through this application, these U values are critical to the performance of the claimed invention. *See Declaration of Christopher R. Cording* at ¶ 8.

Claim 1 further recites the use of “a first low emissivity coating adjacent the second surface of said inner sheet of glass” and “a second low emissivity coating adjacent the second surface of said outer sheet of glass.” While the Office Action correctly notes that Heaney does not disclose two emissivity coatings, as recited in claim 1, Misonou does not supplement this teaching. Misonou is focused on the use of a single low-E film, and the optimum placement of a single low-E film in the panel structure. *See, e.g.*, col. 4, lines 53-64. In determining where to place the single film, Misonou notes that the effect of a low-E film layer is greater with a vacuum layer than an air layer, and thus the low-E film should be formed on the glass sheet contacting a vacuum layer. *See* col. 5, lines 4-11. Figures 4-7 illustrate infrared reflection from a single surface dependent upon which surface the low-E film is deposited. Misonou does not disclose a low-E coating on the inner surface of two sheets of glass as recited and required by claim 1. The use of multiple sheets of glass having low-E coatings was not disclosed by either Heaney or Misonou, and was not mere duplication of parts as asserted by the Office Action. Specifically, the use of multiple coatings enables the IGU to have a total emissivity necessary to produce the

new and unexpected results of the present invention. *See Declaration of Christopher R. Cording* at ¶ 8.

For at least these reasons, neither Heaney nor Misonou, alone or in combination, teaches or suggests each and every limitation of claim 1. Therefore, Applicant respectfully submits that neither Heaney nor Misonou, alone or in combination, renders obvious claim 1.

Claim 26 was rejected under 35 USC § 103(a) as allegedly obvious over Heaney in view of Misonou. The Office Action again relies upon the teachings of Misonou to supplement Heaney. However, neither Heaney nor Misonou, alone or in combination, teach or suggest each and every element of claim 26. For instance, neither Heaney nor Misonou, teach or suggest a refrigerator door comprising *a non-metal sealant assembly and a glass unit having two low-E coatings*, wherein the glass unit has “an emissivity substantially equal to or less than 0.04 substantially preventing the formation of condensation . . . without the application of electricity” as recited in claim 26. Misonou discloses generally that low-E films may be used to yield glass sheets having a reflectance of approximately 0.20-0.05. *See* col. 6, line 44 – col. 7, line 3. However, Misonou does not disclose an IGU having a total emissivity of approximately equal to or less than 0.04, or an operable range of emissivities that would enable the IGU of the present invention to prevent condensation without the application of electricity. As detailed in the Cording Declaration, the emissivity values of the present invention are critical and yield unexpected results. *See Declaration of Christopher R. Cording* at ¶¶ 8-9.

For at least these reasons, neither Heaney nor Misonou, alone or in combination, teach or suggest each and every limitation of claim 26. Therefore, Applicant respectfully submits that neither Heaney nor Misonou, alone or in combination, can render obvious claim 26.

For at least the reasons discussed above with respect to claims 1 and 26, Applicant further respectfully submits that neither Heaney nor Misonou, alone or in combination, can render obvious independent claims 47, 61, 71, 90, 104 and 117.

Claims 2, 3, 5-17, 19-21, 23-25, 27, 28, 30-38, 40-42, 44-46, 48-60, 62-70, 72-74, 76-85, 87-89, 91-103, 105-116 and 118-123 also were rejected under 35 USC § 103(a) as allegedly obvious over Heaney in view of Misonou. We note that these claims depend, directly or indirectly, on independent claims 1, 26, 47, 61, 71, 90, 104 and 117. Therefore, for at least the reasons discussed above with respect to the independent claims, these dependent claims are similarly not rendered obvious over Heaney and/or Misonou.

Accordingly, reconsideration and withdrawal of the rejection of claims 1-3, 5-17, 19-21, 23-28, 30-37, 39-42, 44-74, 76-85 and 87-123 is respectfully requested.

Rejection of Claims 18 and 39 Under 35 U.S.C. § 103(a)

Claims 18 and 39 were rejected under 35 USC § 103(a) as allegedly obvious over Heaney and Misonou, in further view of Richardson. Claims 18 and 39 depend indirectly on independent claims 1 and 26 respectively. Accordingly, Applicant reiterates the comments made above with respect to the Heaney and Misonou reference's failure to render obvious rejected claims 1 and 26, and requests those comments be considered in response to the present rejection as well.

Moreover, Richardson, now cited in combination with the Heaney and Misonou references, does not cure the deficiencies found therein. First, Applicant points out that Richardson does not teach or suggest the U-values and emissivities that also are absent from Heaney and Misonou, and which have been shown to be critical to the claimed invention. Furthermore, and

significantly, Richardson not only does not teach the use of a non-metal spacer/sealant assembly, Richardson in fact directly teaches away from such use. In that regard, Richardson refers to “hollow spacers” that are “preferably made of metal such as aluminum.” (See col. 3, lines 12-14.). The non-metal spacer of the instant invention is a critical component for eliminating condensation around the perimeter of the glass. While it is important to eliminate the condensation in the center of the glass, it is equally important to eliminate condensation at the perimeter. Metal spacers, such as those referred to in Richardson, are typically too thermally conductive to meet normal codes and standards for condensation control for refrigerator and freezer doors. Therefore, one of ordinary skill in the art would not have been led to Applicant’s invention, by following the teachings of the references cited in the Office Action.

For at least the reasons presented herein, Applicant respectfully submits that Heaney and Misonou, in further view of Richardson, can not render obvious claims 18 and 39. Accordingly, reconsideration and withdrawal of the rejection of claims 18 and 39 is respectfully requested.

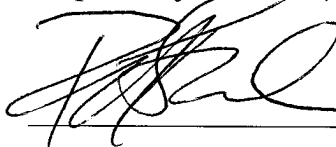
New Claims 124-147

Applicant respectfully submits that the cited documents, and combinations thereof, do not teach or fairly suggest the limitations set forth in newly presented claims 124-147, for at least the reasons set forth in detail herein. Accordingly, Applicant respectfully submits that new claims 124-147 are in condition for allowance.

In view of the above comments, and amendments, Applicant believes that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Respectfully submitted,

By



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